

## ABSTRACT

The evaluation and assessment of geologic formations comprising undersaturated coalbed methane reservoirs. In some embodiments, the present invention provides for inductively quantifying critical desorption pressure of the solid in an undersaturated coalbed methane reservoir from an unrelated substance, the formation water. By using these techniques, the characterization of undersaturated coalbed methane reservoirs may be more quickly and economically made based upon a methane content characteristic such as critical desorption pressure, gas content, and in some embodiments gas content as calculated from isotherm evaluation, estimates of dewatering for production, and ratios of critical desorption pressure to initial reservoir pressure, among other possible characteristics. The features of the invention may further have applicability in combination with conventional reservoir analysis, such as coring, logging, reservoir isotherm evaluation, or other techniques.

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